



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,643	08/27/2003	Ho-Young Lee	030681-556	3899
21839	7590	08/09/2006	EXAMINER	
BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404				HOLTON, STEVEN E
ART UNIT		PAPER NUMBER		
2629				

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/648,643	LEE ET AL.	
	<b>Examiner</b> Steven E. Holton	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 16 February 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,3-17 and 19-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,17,33 and 34 is/are rejected.
- 7) Claim(s) 3-16,19,20,22,24-32, 35, and 36 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                     | Paper No(s)/Mail Date. _____ .  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____ .                                  |

## DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 2/16/2006. Claims 1, 3-17, and 19-36 are currently pending in the application. An action follows below:

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 17, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okano (USPN: 6025818) in view of Kawahara et al. (USPN: 6310588), hereinafter Kawahara.

Regarding claim 33, Okano discloses an apparatus for driving a display device including an image signal input that separates image signal inputs (Fig. 1, element 1), an analog-digital converter for converting the image signal (Fig. 1, element 3), a false contour elimination unit (Fig. 1, element 7) that changes subfields of the image signal depending on the gray-level transition between each current frame and the previous frame in the image so false contour is minimized (col. 2, line 65 – col. 3, line 5; col. 4, line 64 – col. 5, line 9; Fig. 3 shows a table of current and previous pixels and corrected data applied to change the current pixels), and a display control unit to display the image data (Fig. 1, elements 11 and 13). However, Okano does not expressly disclose

"a gamma correction unit, which corrects the digital image signal to suit for the characteristics of a plasma display panel".

Kawahara discloses an image display apparatus including a gamma correction unit (Fig. 1, element 2; col. 6, lines 20-25) and a display control unit (Fig. 1, element 8; col. 8, lines 8-35).

At the time of invention it would have been obvious for one skilled in the art to modify the teachings of Okano with Kawahara to produce an image display device. The motivation for adding the gamma correction unit and display driver of Kawahara would be "for correcting the  $\gamma$  characteristic which is added to the original analog image signals assuming that the signals are displayed on a CRT (Kawahara, col. 6, lines 20-23)." Thus, it would have been obvious to combine the teachings of Okano and Kawahara to produce the device of claim 33.

Regarding claim 34, Kawahara discloses an error diffuser circuit to diffuse errors in the gray levels of a pixel to adjacent pixels (Fig. 1, element 4; col. 13, line 43 – col. 14, line 9) and a subfield converter to convert final gray signals to usable subfield pulses to display the image (Fig. 2, element 71; col. 6, lines 39-47). Okano discloses a signal processing unit (Fig. 1, element 1) that processes the data to fall within a predetermined range. Further, the drivers (Fig. 1, elements 11 and 13) disclosed by Okano act as subfield converters for converting the subfields into outputs to drive the display device.

Regarding claims 1 and 17, these claims are drawn to an apparatus and associated method of operation. The limitations of independent claim 1 are the same as the limitations of claim 34, but lack the inherited limitations of claim 33. Therefore,

the combination of Okano and Kawahara disclose all of the limitations of claim 1 and the apparatus would further possess a method of operation such as in claim 17. The Examiner notes that the transition of the higher weighted subfields shown by Okano from the previous frame to the correct current frame (Fig. 3) are such that the highest subfields do not possess any transitions, making the transition in the emission patterns minimized with respect to transitions.

***Allowable Subject Matter***

3. Claims 3-16, 19, 20, 22, 24-32, 35, and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

4. Applicant's arguments, see pages 20-26, filed 2/16/2006, with respect to the rejection(s) of claim(s) 1, 5, 17, 21 and 33-35 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

Art Unit: 2629

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton  
Division 2629  
August 3, 2006

AMR A. AWAD  
PRIMARY EXAMINER  
*Amr A. Awad*